HISTORIC AMERICAN ENGINEERING RECORD

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THEODORE ROOSEVELT DAM, EASTERN MINING AREA TRANSMISSION LINE (115kV SYSTEM)
Salt River
Roosevelt Vicinity
Gila County
Arizona

HAER AZ-6-C

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Walter J. Lubken, photographer

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AZ-6-C-11 Photographic copy of photograph (February 23, 1909 print in possession of Salt River Project Archives, Tempe, Arizona). MAN AND DOG INSPECTING COMPLETED TOWER BY APACHE TRAIL

AZ-6-C-12 Photographic copy of photograph (February 11, 1909 print in possession of Salt River Project Archives, Tempe, Arizona). THIS TOWER WAS SHORTENED SIGNIFICANTLY. THE PHOTO ALSO ILLULSTRATES THE ADAPTATION OF FOUNDATIONS TO THE UNEVEN TERRAIN

AZ-6-C-13 Photographic copy of photograph (c. 1909 print in possession of Salt River Project Archives, Tempe, Arizona). DETAIL OF PIN-TYPE PORCELAIN INSULATORS

AZ-6-C-14 Photographic copy of photograph (March 20, 1908 print in possession of Salt River Project Archives, Tempe, Arizona). VIEW OF LINE FROM MESA TO ROOSEVELT, LOOKING EAST

Photographer unknown

AZ-6-C-15 Photographic copy of photograph (c. 1925 print in possession of Salt River Project Archives, Tempe, Arizona). TOWER AFTER FIRST MODIFICATION. THE NEW TOWER TOP HAS THREE STEEL CROSS ARMS AND NEW SUSPENSION INSULATORS. *See AZ-6-C-57-59*

AZ-6-C-16 Photographic copy of photograph (January 1914 print in possession of Salt River Project Archives, Tempe, Arizona). COLLAPSED TOWER BASE ON THE ROOSEVELT-MIAMI LINE

AZ-6-C-17 Photographic copy of photograph (January 1914 print in possession of Salt River Project Archives, Tempe, Arizona). COLLAPSED TOWER ON THE ROOSEVELT-MIAMI LINE

AZ-6-C-18 Photographic copy of photograph (c. 1925 print in possession of Salt River Project Archives, Tempe, Arizona). MAINTENANCE WORKERS ON A 110kV TOWER. PHOTOGRAPH ILLUSTRATES THE NEW MODIFICATIONS. *See AZ-6-C-61-62*

AZ-6-C-19 Photographic copy of photograph (c. 1925 print in possession of Salt River Project Archives, Tempe, Arizona). NEW 110kV TRANSMISSION LINE THROUGH THE MOUNTAINS

AZ-6-C-20 Photographic copy of photograph (November 6, 1952 print in possession of Salt River Project Archives, Tempe, Arizona). A TOWER BEING PAINTED NEAR MIAMI TO FURTHER PROTECT THE STEEL FROM HARSH WEATHER. THIS SHOWS THE WOODEN CROSSARMS WHICH REPLACED METAL ONES AS EARLY AS 1928

AZ-6-C-21 Photographic copy of photograph (c. 1925 print in possession of Salt River Project Archives, Tempe, Arizona). TOWER TYPE USED ON THE LINE INTO HORSE MESA AND PERHAPS STEWART MOUNTAIN DAM. NOTE THE WORKER HANGING INSULATORS AT LEFT ON THE BOTTOM CROSSARM. *See AZ-6-C-65-66*

AZ-6-C-22 Photographic copy of photograph (c. 1925 print in possession of Salt River Project Archives, Tempe, Arizona). WORKERS BUILDING TOWER TYPICAL OF HORSE MESA LINE

AZ-6-C-23 Photographic copy of photograph (c. 1927 print in possession of Salt River Project Archives, Tempe, Arizona). THE HORSE MESA TRANSMISSION LINE

AZ-6-C-24 Photographic copy of photograph (c. 1925 print in possession of Salt River Project Archives, Tempe, Arizona). TOWER ON GOLDFIELD-SUPERIOR LINE, 110kV. NOTE THE ADDITIONAL STEEL ARM ON THE RIGHT FOR ANGLE TOWERS. *See AZ-6-C-69*

AZ-6-C-25 Photographic copy of photograph (October 1925 print in possession of Salt River Project Archives, Tempe, Arizona). MEN CONSTRUCTING MUSKOGEE IRON WORKS TOWERS ON GOLDFIELD-SUPERIOR

AZ-6-C-26 Photographic copy of photograph (c. 1925 print in possession of Salt River Project Archives, Tempe, Arizona). MEN STRINGING WIRE ON CLIFF-SIDE TOWER

AZ-6-C-27 Photographic copy of photograph (c. 1927 print in possession of Salt River Project Archives, Tempe, Arizona). MAN POSING BY NEWLY ERECTED TOWER FROM THE PACIFIC COAST STEEL COMPANY OF SAN FRANCISCO. THESE WERE USED ON THE LINE FROM SUPERIOR TO RAY

James R. Eastwood, photographer, March 1996

AZ-6-C-28 General view of tower with original steel crossarms, typical of the 110kV modifications in the 1920s, looking west. This tower, however, is on the line from Goldfield into Mesa. None currently exist in the Eastern Mining Area east of Goldfield

AZ-6-C-29 Detail of tower top on the Goldfield-Superior Line, looking west. Note that the middle crossarm and the right side of the top crossarm have been sawed off to make the line single circuit. These are the original insulators from the 1912 reconstruction

AZ-6-C-30 General view of Transmission Line going across the desert mountain terrain from Goldfield to the Roosevelt Dam, looking northeast

AZ-6-C-31 General view of Roosevelt-Miami Line with Roosevelt Lake in the background, looking northwest

AZ-6-C-32 View of typical tower on Roosevelt-Miami Line, looking northwest

AZ-6-C-33 Detail of Roosevelt-Miami tower top including crossarms and insulators. *See AZ-6-C-63*

AZ-6-C-34 View of tower's infrastructure, looking up from inside tower. The manufacturer's part numbers can be seen on some of the braces

AZ-6-C-35 Detail of anchor brace and foundation. The foundation is made of both local rock material and cement. *See AZ-6-C-56*

AZ-6-C-36 General view of the line going to the Horse Mesa Dam, looking northeast. Compare with historical 1927 photograph, *AZ-6-C-23*

AZ-6-C-37 Frontal view of tower in Horse Mesa Line, looking north

AZ-6-C-38 Side view of typical tower type on the Horse Mesa Transmission Line, looking west

AZ-6-C-39 Detail of tower top on Horse Mesa Line, looking north This is a good example of the arrangement of insulators on an angle type transmission tower

AZ-6-C-40 Detail of tower foundation on Horse Mesa Line

AZ-6-C-41 General view of typical steel tower on the originally 110kV line from Goldfield to Superior, looking northwest

AZ-6-C-42 Frontal view of typical steel tower on Goldfield-Superior Line, looking north. *See AZ-6-C-70*

AZ-6-C-43 Side view of typical Goldfield-Superior Tower, looking west

AZ-6-C-44 Detail of tower top typical of the Goldfield-Superior Line

AZ-6-C-45 Detail of foundation on Goldfield-Superior Line

AZ-6-C-46 Example of a transposition tower on Goldfield-Superior Line, looking southeast. Wires change position at certain points on the line to reduce the electromagnetic field. Such towers come in sets of two. *See AZ-6-C-68*

AZ-6-C-47 Example of an angle tower on the Goldfield-Superior Line, looking north. *See AZ-6-C-69*

AZ-6-C-48 Example of tower on transmission line going to Mormon Flat Dam and Power Plant, looking north. These are most likely also Muskogee Towers, but without the static peaks seen on the Goldfield-Superior Line. In the bottom left, the next tower is an angle tower with the additional arm as seen in the previous photograph

AZ-6-C-49 General view of Superior substation. The town of Superior is on the right. Lines can be seen coming in from Miami, Ray, and Goldfield

AZ-6-C-50 General view of typical tower on the transmission line from Superior to Ray, looking east. The town of Superior is in the background, and the mine is to the left of the tower

AZ-6-C-51 Front view of tower on Superior-Ray Line, looking north

AZ-6-C-52 Side view of tower on Superior-Ray Line, looking east

AZ-6-C-53 Detail of the tower top on the Superior-Ray Line. This shows a bird guard over the middle insulator

AZ-6-C-54 Detail of the foundations on the Superior-Ray Line. *See AZ-6-C-73*

AZ-6-C-55 Detail of original guy anchor on Superior-Ray Tower

AZ-6-C-56 Reduced photographic copy of drawing dated January 7, 1938, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. FEET FOR U.S. WIND ENGINE AND PUMP COMPANY 30 FOOT TOWERS

AZ-6-C-57 Reduced photographic copy of drawing dated April 10, 1022, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. TRANSMISSION LINE TOWER TOP. THIS AND THE FOLLOWING FIGURE REPRESENT THE TOWERS CONSTRUCTED FOR THE ROOSEVELT-MESA AND ROOSEVELT-MIAMI LINES IN 1912

AZ-6-C-58 Reduced photographic copy of drawing dated April 20, 1922, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. LOWER SECTIONS FROM 15'-50' TRANSMISSION TOWERS. THESE SECTIONS ARE FROM THE ORIGINAL U.S. WIND ENGINE AND PUMP COMPANY TOWERS, 1907

AZ-6-C-59 Reduced photographic copy of drawing dated June 5, 1912, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. MIAMI TRANSMISSION LINE TOWER SPLICE DETAILS

AZ-6-C-60 Reduced photographic copy of drawing dated c. 1917, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. MAGMA TRANSMISSION LINE TOWER TOP

AZ-6-C-61 Reduced photographic copy of drawing dated June 26, 1925, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. HORSE-MESA POWER DEVELOPMENT. RECONSTRUCTED TOWER TOP FOR 110kV MIAMI-ROOSEVELT-MESA TRANSMISSION LINE

AZ-6-C-62 Reduced photographic copy of drawing dated May 28, 1928, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. 110kV TRANSMISSION LINE. ARRANGEMENT OF CONDUCTORS. *See Figure #3*

AZ-6-C-63 Reduced photographic copy of drawing dated December 17, 1928, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. SUPERIOR-INSPIRATION 110kV LINE. PROPOSED 6 X 8 WOOD ARMS

AZ-6-C-64 Reduced photographic copy of drawing dated December 30, 1928, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. PROPOSED INSTALLATION OF GROUND WIRE AND WOOD CROSSARMS. MIAMI-ROOSEVELT-GOLDFIELD EASTERN CANAL 110kV LINES

AZ-6-C-65 Reduced photographic copy of drawing dated December 26, 1924, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. TOWER TOP FOR HORSE MESA TOWERS

AZ-6-C-66 Reduced photographic copy of drawing dated December 26, 1924, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. TOWER BOTTOM FOR HORSE MESA TOWERS

AZ-6-C-67 Reduced photographic copy of drawing dated May 5, 1917, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. GOLDFIELD-SUPERIOR 45,000 VOLT LINE. LINE CONSTRUCTION DETAILS. THIS WAS THE LINE THAT PRECEDED THE 110kV CONSTRUCTION. THESE WOOD POLES WERE REPLACED BY STEEL TOWERS

AZ-6-C-68 Reduced photographic copy of drawing dated c. 1924, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. TOWERS ON THE GOLDFIELD-SUPERIOR LINE. MANUFACTURED BY MUSKOGEE IRON WORKS

AZ-6-C-69 Reduced photographic copy of drawing dated c. 1924, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. ANGLE TOWERS ON THE GOLDFIELD-SUPERIOR LINE. MUSKOGEE IRON WORKS

AZ-6-C-70 Reduced photographic copy of drawing dated c. 1924, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. 45' INTERMEDIATE TOWER ON GOLDFIELD-SUPERIOR LINE. MUSKOGEE IRON WORKS

AZ-6-C-71 Reduced photographic copy of drawing dated August 24, 1928, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. GROUND WIRE SUPPORTS. GOLDFIELD-SUPERIOR TOWER LINE

AZ-6-C-72 Reduced photographic copy of drawing dated c. 1927, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. ERECTION PLAN OF 30 FOOT-45 FOOT AND 55 FOOT INTERMEDIATE TOWERS. RAY-SUPERIOR 110kV TRANSMISSION LINE. NEVADA CONSOLIDATED COPPER COMPANY. PACIFIC COAST STEEL COMPANY

AZ-6-C-73 Reduced photographic copy of drawing dated March 18, 1927, from microfiche located at the Files and Reproduction Department, Salt River Project, Phoenix, Arizona. ASSEMBLY OF TEMPLATES TO LINE TOWER STUBS. RAY-SUPERIOR 110kV TRANSMISSION LINES